Bacteriology

Functional Diagnosis of the Reticulo-Endothelium.—In addition to the highly specialized endocrines of current nomenclature, several biochemists have postulated less specialized tissues of internal secretion widely distributed throughout the body in the form of the reticulo-endothelial system. Immunologists in particular have been interested in this hypothetical somatic endocrine as the possible source of specific antibodies. That this system may in time become of diagnostic importance is indicated by the reticulo-endothelial functional test recently proposed by Wilensky of Lenin Institute for Medical Research, Kasan, Russia.[1]

The colloidal dye, Congo red, injected intravenously into rabbits, is rapidly removed from the blood by a process that we may refer to, figuratively, as colloidal phagocytosis by the capillary endothelium and related cells. At the end of an hour less than 20 per cent of the injected dye is demonstrable colorimetrically in the circulation. In rabbits whose reticulo-endothelial functions have been reduced or inhibited by intravenously injected diphtheria toxin or living staphylococci 45 per cent of the injected colloid may be demonstrable at the end of an hour.

Applying this test clinically, Wilensky reports that one hour after intravenous injection of his routine test dose (10 cubic centimeters 1 per cent Congo red), 30 per cent of the dye is present in the normal circulation of man, 50 per cent in patients with mild bacterial infections, and as high as 80 to 100 per cent in patients suffering from severe infections. There is a suggestion in his data that the percentage of retained colloid is an approximate measure of severity and prognosis.

Whether or not the test is harmful or beneficial to the patient, Wilensky does not say. There seems no reason, however, why a test of this type should not be developed along both diagnostic and therapeutic lines.

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REFERENCE

1. Wilensky, L. J.: Fur Lehre der Functionellen Diagnostik des Reticulo-Endotheleoparates, Ztschr. f. d. ges. Exper. Med., 1927, Vol. liv, 257.

Orthopedics

Claw-Toes.—The term "hammer-toe" is properly applied to toes so deformed which are traceable from childhood, and are, most likely, inherited because they can invariably be traced in the family tree. The hammer-toes may thus be regarded as a primary congenital deformity, and not be attributed to faulty shoe-wearing, since it can be diagnosed long before the foot has even been shod. Toe deformities which simulate hammer-toes, but are produced by other causes such as hereditary and intra-uterine defects, are better termed "claw-toes."

There is, primarily, a weakness or a paralysis of the interossei muscles of the lesser toes, and a similar muscle defect of the abductor and adductor hallucis and both short flexors of the big toe. This inefficiency may be a local manifestation of a remote pathologic lesion, as in poliomyelitis, progressive muscular distrophy, spina bifida, or it may result from local harmful influences, such as short shoes and socks, which force the toes into extension, ultimately producing a contracture of the extensors and a weakness and overstretching of the flexors of the toes. Claw-toes may be a sequence of metatarsal arch depression, and be associated with hallux valgus and minimus digitus varus; in these cases the flattening of the metatarsal arch compresses the interossei muscles, thus disturbing their function, weakening and inactivating them. The interossei muscles, being weak from any of the many causes, lose their flexor action upon the basal phalanges, thus lending to the extensors of the toes more than usual power to act upon the basal phalanges; they become overextended and dorsally displaced, eventually even subluxated.

In course of time the extensor muscles shorten and contract permanently, while the long toe flexors become stretched by this hyperextension; they pull the first and second phalanges into flexion. Thus, the claw-toes are completed. The symptomatology of this defect is too well known to need rehearsing. Be it only added that the patients are so miserable that they are willing to sacrifice the toes if they receive the assurance that they will be freed from the unbearable pain.

Conservative attempts at treatment should always precede any operative measures, and only if the former fail should the latter be recommended. The conservative methods aim to guard against pressure upon the prominent phalangeal heads. There are many ways to secure relief. One way, advocated by Hohman, is not so popular as the others. He attempts to pull the basal phalanges plantarily. He places on the dorsum a piece of felt. This pad is held by adhesive strapping, which pulls the phalanges downward. There are many ingenious conservative methods to relieve pain; but to restore normal relations, to effect a cure, surgical procedures must be resorted to.

Among the operations which should be discarded in these deformities are: (1) amputation of a toe or toes, since worse crippling will be the outcome; (2) forcible manipulation, and cutting the soft tissue on the plantar surface, because these procedures will only give a temporary result. The best operative measure is on the extensors, without or with resection of bone.

If no bone is to be resected the extensor attachments on the basal phalanges are loosened, and the fibrous bands from the tendons are completely detached. After this loosening and detachment of the tendons they are elongated. The contracted capsules should be loosened only on the dorsal side, the plantar surface of the contracted capsule should not be touched. The dislocated phalanges can be easily reduced by traction and kept in position by splinting. I have seen no recurrence in my operated cases.

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